



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,945	03/18/2004	Timothy E. Macfadyen	118834	5161

25944 7590 08/11/2005

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

HANAN, DEVIN J

ART UNIT	PAPER NUMBER
----------	--------------

3745

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Tth

<b>Office Action Summary</b>	<b>Application No.</b> 10/802,945	<b>Applicant(s)</b> MACFADYEN, TIMOTHY E.	
	<b>Examiner</b> Devin Hanan	<b>Art Unit</b> 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/18/2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor (MPEP 2164.08(a)).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4-5, 8 and 10 rejected under 35 U.S.C. 102(b) as being anticipated by Wood (U.S. Patent 2,709,567).

Wood discloses an air cooled bearing (21) with means for imparting a swirl component (32) to cooling air flowing towards a bearing.

Regarding claim 2, Wood discloses means for imparting a swirl component (32) is a vane or a plurality of vanes (slinger disc has vanes).

Regarding claim 4, Wood discloses the vanes are rotatable with respect to a bearing support means (portion connected to the outer race) of the bearing.

Regarding claim 5, Wood discloses the vanes are connected to a rotatable shaft (22) supported by the bearing.

Regarding claim 10, Wood discloses the bearing is in a gas turbine engine (figure 1).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Kostrzewsky et al. (U.S. Patent 6,886,985).

Kostrzewsky discloses an air cooled bearing (102) with means for imparting a swirl component (32) to cooling air flowing towards a bearing.

Regarding claim 2, Kostrzewsky discloses means for imparting a swirl component (116) is a vane or a plurality of vanes

Regarding claim 3, Kostrzewsky discloses the vane or vanes are fixed in relation to a bearing support means (fan 116 is connected to housing 12 with is connected to base 14) of the bearing.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kostrzewsky in view of Wood.

Kostrzewsky discloses the vanes that are fixed in relation to a bearing support means, but does not disclose the vanes that are rotatable relative to the bearing support means.

However, Wood teaches of shaft mounted vanes that would be rotatable relative to the bearing support means to further the cooling of the bearing.

Since Kostrzewsky and Wood are both related to the bearing cooling art, the purpose disclosed by Wood would be recognized in the pertinent art of Kostrzewsky. It would have been obvious to one having ordinary skill in the art at the time the invention

Art Unit: 3745

was made to add the shaft mounted vanes of Wood to the bearing support means cooling system of Kostrzewsky to further the cooling of the bearing.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood in view of Tabuchi et al. (U.S. Patent 6,860,639).

Wood discloses all of the above claimed elements, but does not disclose a bearing cage.

However, Tabuchi et al. teaches of a bearing cage (3d) for retaining rolling elements of the bearing (applicant's specification page 3, last paragraph claims the cage is well known in the art) and means for imparting a swirl component to the cooling air that is configured such that the swirl direction of the cooling air is substantially the same as the direction of rotation of the bearing cage in use and means for imparting a swirl component to the cooling air is configured such that the circumferential swirl velocity of the cooling air is substantially equal to the rotational velocity of the said bearing cage in use (To some degree there is still friction in the bearing, keeping the ball bearings and cage moving in the direction of rotation of the inner bearing race, shaft and vanes).

Tabuchi et al. has a cage around the bearing to serve as a retainer (col. 3 ll. 44-45).

Since Wood and Tabuchi et al. are both related in the bearing art, the purpose disclosed by Tabuchi et al. would be recognized in the pertinent art of Wood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the cage of Tabuchi et al. to the bearing of Wood to help retain the bearing (col. 3, lines 44-45).

***Allowable Subject Matter***

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Prior Art***

The patent to Barrett (U.S. Patent 5,435,414) was cited for its teaching of a total loss oil lubrication system and how it is useful in systems where recirculation oil is cannot be done (col. 1, lines 34-36).

The patent to Ando et al. (U.S. Patent 4,006,944) was cited for its teaching of a oil distributor (18) which is capable of generating a swirling flow of air and oil.

The patent to Kim et al. (U.S. Patent 6,223,740) was cited for its teaching of a cooling fan on a furnace specifically designed to cool a bearing (62).


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devin Hanan whose telephone number is 571-272-6089. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Devin Hanan  
Patent Examiner  
Art Unit 3745

  
EDWARD K. LOOK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700  
8/8/05